

**FIRST AND SECOND DERIVATIVE PROCESSING
OF WAVELENGTH MULTIPLEXED OPTICAL SIGNALS**

5

ABSTRACT OF THE DISCLOSURE

10 A system and method for optimizing performance characteristics of optical networks.
The system and method exploits a wavelength-locked loop servo-control circuit and
methodology that enables real time adjustment of optical signals in accordance with
attenuation characteristics of an optical transmission channel. Particularly, the invention
enables alignment of optical signal center wavelengths and optical wavelength selective
devices exhibiting a peaked passband function in optical networks utilizing information
included in first derivative and second derivatives of dither modulated optical signals
extracted from a feedback signal provided in the wavelength-locked loop servo-control
15 circuit.

09963258-092601